

Our ref: KON-1833

Client's ref: P6250-001-0000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: T. MURAKAMI, et al:

Group : 2871

Appln. No. : 10/695,616

Examiner: Robert

Filed : October 28, 2003

A. Vetere

For : METHOD FOR FORMING ANTI- :
GLARE LAYER AND ANTI-
GLARE FILM, AND INK-JET :
APPARATUS FOR FORMING
ANTI-GLARE LAYER :

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CONFIRMATION #6282

DECLARATION

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

S i r:

I, Takashi MURAKAMI, hereby declare and state as
follows:

1. I am a named Inventor in this Application.

2. I received a Master's Degree in Engineering from Tokyo University of Agriculture and Technology in March of 1989. Since my graduation, I have been employed by Konica Corporation, and now by change of name, Konica Minolta Opto, Inc., the Assignee in this Application. Since 1999 I have been engaged in Research and Development in the field of materials for optical films.

3. I am aware that the Examiner in this case has rejected the claims and that one of the references applied by the Examiner is Shoshi (U.S. 5,998,013). I am also aware that the Examiner has taken the position that the composition taught in Shoshi could be used in an inkjet apparatus to form an anti-glare coating. I have studied Shoshi and, in order to test whether or not Shoshi's composition can be used with an inkjet apparatus, I have made the material of Shoshi and tested it with an inkjet apparatus. The results of my tests are reported below.

4. I have found that a discontinuous layer of individual ink drops on a transparent substrate produces superior results compare to a continuous layer of ink droplets on a transparent substrate where both the discontinuous and the continuous layer are formed using an inkjet apparatus. In order to demonstrate this aspect of the present Invention, I have also performed additional tests using the ink of the present Invention to form both a discontinuous and a continuous layer of ink on a transparent substrate. This second set of tests is also reported below.

5. In order to test the material of Shoshi in an inkjet apparatus, I prepared four different inks as reported in Examples 1-4 of Shoshi. For Example 1, I have followed the chemical composition with the amounts and the procedure outlined in Shoshi at column 1, line 55 through column 9, line 2. All of the components of the ink were readily available in the open market. For the ink of Example 2 of Shoshi, I followed the procedure outlined at column 9, lines 30-35. For the ink of Example 3, I followed the teachings of Shoshi

as reported in column 9, lines 51-54. Finally, for the ink of Example 4, I followed the teachings of Shoshi at column 9, lines 61-65.

6. I then used the inks of Examples 1-4 of Shoshi and loaded them into an inkjet apparatus as described in pages 124 and 125 of the Application. I then proceeded to run the inkjet apparatus to form a discontinuous layer of ink droplets on a transparent substrate. I found that the inks of Examples 1-3 of Shoshi were unable to be ejected from the 3.5 μm diameter nozzles of the inkjet apparatus. In other words, the inks of Examples 1-3 of Shoshi did not work in the inkjet apparatus. The ink of Example 4 of Shoshi initially was able to be ejected but quickly clogged the nozzle. Thus, no coating of any type was able to be formed with the ink of Example 4 of Shoshi because the nozzle clogged. From this experiment, I concluded that the inks of Examples 1-4 of Shoshi cannot be used by an inkjet apparatus so as to form an anti-glare coating.

7. In order to demonstrate the difference between a continuous and discontinuous layer, I prepared Inks 1-3 as reported on pages 125 and 126 of my Application. I then ejected the ink through an inkjet apparatus onto a film using the apparatus and procedures as reported on pages 124 and 125 of my Application to form a discontinuous layer. The film on which the ink was jetted was the anti-glare film 3 as reported on page 124 of the Application. These films were labeled 5, 6 and 7.
8. In order to make a continuous layer from Inks 1-3 of the present Invention, the same inkjet apparatus and procedure, as reported on pages 124 and 125 of the Application, was used except that a five line head system was employed. The five line head system allowed for the formation of a continuous layer of ejected ink. Otherwise, the same film was used as for Inks 1-3 which were used for the discontinuous layer. These continuous films were labeled Samples 5B, 6B and 7B.

9. The volume of ink droplets and the surface roughness of the resulting films 5, 6, 7, 5B, 6B, 7B are reported in Table 1B attached hereto.
10. Each one of the films was then used to make a polarized plate in the same manner taught in the Application starting at page 135. These polarized plates were then evaluated for visibility and image quality and sharpness in the same manner outlined in the Application at pages 137 and 138. The rankings, as reported on pages 137 and 138, were given for each one of the films and the results are reported in Table 2B, attached hereto.
11. It can be seen from the evaluation in Table 2B that the continuous layer had inferior visibility and image quality and sharpness compared to the discontinuous layer formed with the same ink. I find it surprising and unexpected that the same ink used to make a continuous versus a discontinuous layer, would result in such a large difference.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

April 22, 2009

Takashi Murakami
Takashi MURAKAMI

DCL/mr

Encl: Table 1B
Table 2B

Table 1B

Anti-Glare Film No.	Feature of Hard Coat Layer of Lower Layer	Forming Method	Ink Type	Ink Droplet Volume (pl)	UV Exposure Time (seconds)	Surface Roughness Ra (μm)	Remarks
5	*2	Ink jet	1	2.0	*8	2.0	Inv.
6	*2	Ink jet	2	0.5	*8	0.5	Inv.
7	*2	Ink jet	3	0.1	*8	0.1	Inv.
5B	*2	Ink jet (5 line head)	1	2.0	*8	0.03	Newly made
6B	*2	ink jet (5 line head)	2	0.5	*8	0.02	Newly made
7B	*2	ink jet (5 line head)	3	0.1	*8	0.02	Newly made

*2; completely cured, *8; 0.2 after deposition, Inv.: Present Invention

Table 2B

Anti-glare Film No.	Evaluation of Polarizing Plate		Remarks
	Visibil- ity	Image Quality and Sharpness	
5	B	B	Inv.
6	A	A	Inv.
7	A	A	Inv.
5B	E	E	Newly made
6B	E	E	Newly made
7B	E	E	Newly made